

**AMENDMENTS TO THE CLAIMS**

1. (Previously presented) An oscillator for outputting an oscillation signal of a voltage control oscillator via a transfer line, the oscillator comprising:

a variable resonator that is electro-magnetically connected to the transfer line, receives at least one part of the oscillation signal, and mechanically changes a resonant frequency in response to a control signal;

a detector that detects a resonant output of the variable resonator; and

a correcting circuit that transmits the control signal to the variable resonator, receives the an output from the detector while sweeping the resonant frequency, and corrects a frequency of the oscillation signal to a desired frequency under the control of a modulation voltage sent to the voltage control oscillator.

2. (Previously presented) The oscillator according to Claim 1, wherein the variable resonator comprises:

a resonator; and

a rotor that is arranged in proximity of the resonator, the rotor having a shape that changes in a circumferential direction thereof,

wherein the rotation of the rotor changes a distance between the resonator and the rotor, and changes the resonant frequency of the resonator.

3. (Previously presented) The oscillator according to Claim 1, wherein the variable resonator is a cavity resonator, a part of a cavity of the cavity resonator forming a rotor and having a shape that changes in a circumferential direction thereof, wherein the rotation of the rotor changes an inner dimension of the cavity, and changes the resonant frequency of the cavity resonator.

4. (Previously presented) The oscillator according to Claim 2, wherein the rotor has a wall that continuously increases in height on the outer circumference on the undersurface thereof.

5. (Previously presented) The oscillator according to Claim 2, wherein the rotor has a wall that changes its position in the radial direction from an outer circumference to an inner circumference on the undersurface thereof.

6. (Currently amended) The oscillator according to Claim 2 or 3, wherein the rotor has a wall that continuously increases in height throughout half of an outer circumference on the undersurface thereof and continuously reduces in height throughout a remaining half.

7. (Previously presented) The oscillator according to Claim 1, wherein the variable resonator comprises:

- a resonator that is placed in a cavity; and

- a piezoelectric actuator that is arranged facing the resonator, wherein expansion and contraction of the piezoelectric actuator changes the inner dimension of the cavity so as to change the resonant frequency of the resonator.

8. (Previously presented) An oscillator for outputting an oscillation signal of a voltage control oscillator via a transfer line, the oscillator comprising:

- a variable resonator that is electro-magnetically connected to the transfer line, receives at least one part of the oscillation signal, and mechanically changes a resonant frequency in response to a control signal;

- a detector that detects a resonant output of the variable resonator; and

- an abnormality detecting circuit that transmits the control signal to the variable resonator, receives an output from the detector while sweeping the resonant frequency to the variable resonator, detects the oscillation frequency of the voltage control oscillator, and detects an abnormality of an oscillation frequency and/or a modulation width of the oscillation frequency.

9. (Previously presented) The oscillator according to Claim 1, wherein the variable resonator comprises:

a resonator; and

a variable reactance device, the variable reactance device comprising a transfer line that is electro-magnetically connected to the resonator; and a rotor that is arranged in proximity of the transfer line, the rotor having a shape that changes in a circumferential direction thereof, wherein the rotation of the rotor changes a reactance of the transfer line, and changes the resonant frequency of the variable resonator.

10. (Previously presented) The oscillator according to Claim 9, wherein at least one part of the rotor facing the transfer line is conductive, and capacitance is generated between the transfer line and the rotor.

11. (Previously presented) The oscillator according to Claim 10, wherein the rotor has a wall that is meandered in a radial direction on an undersurface of the rotor.

12. (Previously presented) The oscillator according to Claim 10, wherein the rotor has an undersurface with a wall, the wall having a thickness that periodically changes in the circumferential direction.

13. (Previously presented) The oscillator according to Claim 10, wherein the rotor has an undersurface with a wall, the wall having a height that periodically changes in the circumferential direction.

14. (Previously presented) The oscillator according to Claim 10, wherein the rotor has an outer circumference with projected and caved portions that are repeatedly formed, and the transfer line is a micro strip line and the capacitance is generated between an opening end of the micro strip line and the outer-circumferential surface of the rotor.

15. (Previously presented) The oscillator according to Claim 10, wherein the transfer line is a coplanar line, and capacitance is generated between a line conductor of the coplanar line and the rotor and between a ground conductor of the coplanar line and the rotor.

16. (Previously presented) The oscillator according to Claim 15, wherein a pair of rotors is arranged to sandwich the transfer line, and the pair of rotors are rotated in conjunction therewith.

17. (Previously presented) The oscillator according to Claim 9, wherein the rotor comprises a dielectric having a wall that is ring-shaped on an undersurface thereof and is meandered in a radial direction, and the transfer line comprises a coplanar line.

18. (Previously presented) The oscillator according to Claim 9, wherein the rotor comprises a dielectric, the transfer line comprises a coplanar line, and the rotation of the rotor changes the distance between the rotor and the transfer line.

19. (Previously presented) A radar apparatus comprising:  
an oscillator according to Claim 1.

20. (Previously presented) A radar apparatus comprising:  
an oscillator according to Claim 1, wherein the rotor comprises a primary radiator, the rotation of the rotor changes a resonant frequency of the variable resonator, and the primary radiator scans radar waves radiated from the primary radiator in a radial direction thereof.

21. (Previously presented) The oscillator according to Claim 3, wherein the rotor has a wall that continuously increases in height on the outer circumference on the undersurface thereof.

22. (Previously presented) The oscillator according to Claim 3, wherein the rotor has a wall that changes its position in the radial direction from an outer circumference to an inner circumference on the undersurface thereof.

23. (Previously presented) The oscillator according to Claim 3, wherein the rotor has a wall that continuously increases in height throughout half of an outer circumference on the undersurface thereof and continuously reduces in height throughout a remaining half.